

IN THE CLAIMS

Please cancel claims 10 and 11 without prejudice and amend the claims as follows:

1. (currently amended) A method for producing a quartz glass jig, said method comprising: processing a quartz glass raw material into a desired shape by a treatment including fire working, annealing the quartz glass jig so as to remove stress therein, and cleaning treatment to obtain a final product, **and wherein performing** a gas phase etching step and a gas phase purification step are performed on a surface layer of the quartz glass jig after the annealing but before the cleaning treatment, **and** wherein the gas phase purification step is carried out continuously after the gas phase etching step.

2. (currently amended) A method for producing a quartz glass jig, said method comprising: processing a quartz glass raw material into a desired shape by a treatment including fire working, annealing the quartz glass jig so as to remove stress therein, and cleaning treatment to obtain a final product, **and wherein performing** a gas phase etching step and a gas phase purification step are performed on a surface layer of the quartz jig after the annealing but before the cleaning treatment, **and** wherein the gas phase purification step is carried out simultaneously with the gas phase etching step.

3. (currently amended) A method for producing a quartz glass jig, said method comprising: processing a quartz glass raw material into a desired shape by a treatment including fire working, annealing the quartz glass jig so as to remove stress therein, and cleaning treatment to obtain a the final product, **and wherein performing** a gas phase etching step and a gas

phase purification step **are performed** on a surface layer of the quartz glass jig simultaneously with the annealing, **and** wherein the gas phase purification step is carried out continuously after the gas phase etching step.

4. (currently amended) A method for producing a quartz glass jig, said method comprising: processing a quartz glass raw material into a desired shape by a treatment including fire working, annealing **the quartz glass jig** so as to remove stress **therein**, and cleaning treatment to obtain **a** the final product, **and wherein performing** a gas phase etching step and a gas phase purification step **are performed** on a surface layer of the quartz glass jig simultaneously with the annealing, **and** wherein the gas phase purification step is carried out simultaneously with the gas phase etching step.

5. (Original) A method for producing a quartz glass jig as claimed in Claim 1, wherein the gas phase etching step is performed in a temperature range of from 0 °C to 1300 °C in a gaseous atmosphere containing fluorine (F).

6. (Original) A method for producing a quartz glass jig as claimed in Claim 5, wherein the gaseous atmosphere containing F contains at least one gas selected from the group consisting of C_xF_y , Cl_xF_y , N_xF_y , Si_xF_y , S_xF_y (where, $10 \geq x \geq 1$ and $10 \geq y \geq 1$), CHF_3 , HF , and F_2 .

7. (Original) A method for producing a quartz glass jig as claimed in Claim 1, wherein the gas phase purification step comprises performing high temperature heat treatment in a temperature range of from 800 to 1300 °C in a gaseous atmosphere containing Cl.

8. (Original) A method for producing a quartz glass jig as claimed in Claim 7, wherein the gaseous atmosphere containing Cl is HCl, Cl₂, or a combination of HCl and Cl₂.

9. (Original) A method for producing a quartz glass jig as claimed in Claim 5, wherein the gaseous atmosphere containing F further includes a gas containing H.

10. (Canceled)

11. (Canceled)

12. (Original) A method for producing a quartz glass jig as claimed in Claim 2, wherein the gas phase etching step is performed in a temperature range of from 0 °C to 1300 °C in a gaseous atmosphere containing fluorine (F).

13. (Original) A method for producing a quartz glass jig as claimed in Claim 12, wherein the gaseous atmosphere containing F contains at least one gas selected from the group consisting of C_xF_y, Cl_xF_y, N_xF_y, Si_xF_y, S_xF_y (where, $10 \geq x \geq 1$ and $10 \geq y \geq 1$), CHF₃, HF, and F₂.

14. (Original) A method for producing a quartz glass jig as claimed in Claim 2, wherein the gas phase purification step comprises performing high temperature heat treatment in a temperature range of from 800 to 1300 °C in a gaseous atmosphere containing Cl.

15. (Original) A method for producing a quartz glass jig as claimed in Claim 14, wherein the gaseous atmosphere containing Cl is HCl, Cl₂, or a combination of HCl and Cl₂.

16. (Original) A method for producing a quartz glass jig as claimed in Claim 12, wherein the gaseous atmosphere containing F further includes a gas containing H.

17. (Original) A method for producing a quartz glass jig as claimed in Claim 3, wherein the gas phase etching step is performed in a temperature range of from 0 °C to 1300 °C in a gaseous atmosphere containing fluorine (F).

18. (Original) A method for producing a quartz glass jig as claimed in Claim 17, wherein the gaseous atmosphere containing F contains at least one gas selected from the group consisting of C_xF_y, Cl_xF_y, N_xF_y, Si_xF_y, S_xF_y (where, $10 \geq x \geq 1$ and $10 \geq y \geq 1$), CHF₃, HF, and F₂.

19. (Original) A method for producing a quartz glass jig as claimed in Claim 3, wherein the gas phase purification step comprises performing high temperature heat treatment in a temperature range of from 800 to 1300 °C in a gaseous atmosphere containing Cl.

20. (Original) A method for producing a quartz glass jig as claimed in Claim 19, wherein the gaseous atmosphere containing Cl is HCl, Cl₂, or a combination of HCl and Cl₂.

21. (Original) A method for producing a quartz glass jig as claimed in Claim 17, wherein the gaseous atmosphere containing F further includes a gas containing H.

22. (Original) A method for producing a quartz glass jig as claimed in Claim 4, wherein the gas phase etching step is performed in a temperature range of from 0 °C to 1300 °C in a gaseous atmosphere containing fluorine (F).

23. (Original) A method for producing a quartz glass jig as claimed in Claim 22, wherein the gaseous atmosphere containing F contains at least one gas selected from the group consisting of C_xF_y , Cl_xF_y , N_xF_y , Si_xF_y , S_xF_y (where, $10 \geq x \geq 1$ and $10 \geq y \geq 1$), CHF_3 , HF , and F_2 .

24. (Original) A method for producing a quartz glass jig as claimed in Claim 4, wherein the gas phase purification step comprises performing high temperature heat treatment in a temperature range of from 800 to 1300 °C in a gaseous atmosphere containing Cl.

25. (Original) A method for producing a quartz glass jig as claimed in Claim 24, wherein the gaseous atmosphere containing Cl is HCl, Cl_2 , or a combination of HCl and Cl_2 .

26. (Original) A method for producing a quartz glass jig as claimed in Claim 17, wherein the gaseous atmosphere containing F further includes a gas containing H.